ABSTRACT

The invention relates to an *in vitro* diagnostic method for quantification of a clinical chemistry analyte from a clinical sample wherein the clinical chemistry analyte undergoes a chemical reaction or reactions with a reagent or reagents in one or several steps, or in a reaction sequence, or catalyses a chemical reaction, or reactions, or a reaction in a reaction sequence of a reagent or reagents, in one or several steps, in a reaction system. The reaction or reactions or reaction sequence result in a change of a measurable property of a compound or compounds of said reaction or reactions or reaction sequence. Characteristic for the method is that said chemical reaction or reactions or reaction sequence results in formation of a two-photon fluorescent compound, or a change in two-photon fluorescence properties of the reaction system comprising at least one two-photon fluorescent compound, and the analyte is quantified by exciting said two-photon fluorescent compound or compounds and measuring two-photon exited fluorescence, and relating said measured fluorescence to method standardization data based on measurements obtained from reference material of said analyte. The present invention also relates to use of a fluorometric device employing two-photon fluorescence excitation for quantification of a clinical chemistry analytes. The present invention further relates to a system for quantification of clinical chemistry analytes from samples containing the analyte. Characteristic for the system is that it comprises a fluorometric device employing two-photon excited fluorescence for quantifying one or several clinical chemistry analytes, and a data processing unit with software for dedicated data reduction for quantification of the analyte or analytes using said fluorometric device. The present invention further relates to a software product for the system.